DOCUMENT RESUME

ED 326 764 CG 022 972

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TITLE The Utility of Assessment Centers for Career Development.
PUB DATE Aug 90
NOTE 14p.; Paper presented at the Annual Convention of the American Psychological Association (98th, Boston, MA, August 10-14, 1990).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Administrator Evaluation; Administrators; *Assessment Centers (Personnel); *Career Development; Employee Attitudes; Feedback; Improvement; *Job Performance; *Management Development; *Middle Management; Program Effectiveness; Work Attitudes

ABSTRACT

During the past 30 years, assessment centers have become an increasingly popular method for evaluating employees and potential employees in work organizations. This study was conducted to evaluate an assessment center which was part of a management development program for state government employees. The study examined: (1) whether assessment center feedback is accepted and acted on by participants; (2) whether this feedback improves managerial performance; and (3) the utility of assessment centers for career development. Participants (N=102) were middle-managers in state government who took part in an assessment center program. The findings revealed that participants appeared to accept and act upon the assessment feedback they received. Poor performers followed the assessment center's recommendations to the same extent as did high performers, and the participants believed they could improve their managerial performance by following the recommendations. After receiving feedback, participants were able to improve their performance on a measure of managerial effectiveness. Utility analysis indicated that the gain in productivity from the assessment far outweighed the costs. (Author/NB)

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The Utility of Assessment Centers for Career Development

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Abstract

Three questions about developmental assessment centers are addressed: (1) Is assessment center feedback accepted and acted on by participants?; (2) Does this feedback improve managerial performance?; (3) What is the utility of assessment assessment centers for career development? Participants (n=102) appeared to accept and act upon the assessment feedback. Poor performers followed the recommendations to the same extent as high performers, and the participants believed they could improve their managerial performance by following the recommendations. After receiving feedback, participants were able to improve their performance on a measure of managerial effectiveness. Utility analysis indicated that the gain in productivity from the assessment far outweighed the costs.

The Utility of Assessment Centers for Career Development

During the past 30 years, assessment centers have become an increasingly popular method for evaluating employees and potential employees in work organizations. Gaugler, Rosenthal, Thornton and Bentson (1987) estimate that over 2,000 organizations are currently using some type of assessment center program. Recently, many organizations also have been implementing newly-designed career development programs. A promising development in this area, according to Wexley (1984), is the career development assessment center. Developmental assessment centers are designed to provide an evaluation of an individual's potential to perform at a higher level, and seem to have considerable appeal to participants and management. Developmental centers may integrate career planning into the human resources system by providing feedback on managerial strengths and weaknesses, and by recommending developmental activities such as training. By having their abilities to perform managerial activities evaluated, individuals who are not suited for management positions could self-select themselves out of the promotional process, according to Wexley.

The purpose of the present study was to evaluate an assessment center which was part of a management development program for state government employees. The study attempted to answer three questions about the assessment center: (1) Is the feedback from the assessment center accepted and acted on by the participants?; (2) Does participation in the assessment center and feedback session improve participants' managerial performance?; and, (3) What is the economic utility of the assessment center for career development?

Method

Participants were 102 middle-managers in state government. The sample included 39 female and 21 black participants. Participation in the program was voluntary. An independent sample of 20 middle-managers volunteered to serve as the control group in this study. These managers were eligible to participate, but had not yet been assigned to the program.

The dimensions and the exercises used in the assessment center were based on an extensive job analysis of middle-manager positions (Hauenstein, 1985). The job analysis identified 10 dimensions as critical for successful job performance: Integrity, Problem Detection, Initiative, Persuasiveness, Time Sensitivity, Sensitivity, Group Leadership, Organization and Planning, Written Communication, and Oral Communication. Job analysis results were also used in the design of the tasks, settings, and scoring criteria for the following assessment center exercises: (1) Patterned Interview; (2) Meeting Exercise (small leaderless group discussion); (3) Policy Analysis Presentation Exercise (oral presentation); (4) Policy Implementation Plan (development of a written plan for implementing policy changes); (5) Written Situational Test; (6) Policy Discussion Exercise (large leaderless group discussion); (7) Performance Counseling Exercise; and, (8) In-Basket Exercise.

At the end of each exercise, from one to three assessors rated the participant's performance on the relevant dimensions using a five-point scale (1 = less than acceptable; 5 = outstanding). The participants also received scores on three standardized psychological instruments: Leadership Opinion Questionnaire (LOQ) (Fleishman, 1960); Leader Behavior Description Questionnaire (LBDQ) (Stogdill, 1963); and, Personality Research Form (PRF) (Jackson, 1974). After the assessment was completed, the assessors met with the center director to reach consensus decisions on dimension ratings for each participant.

Based on the assessment center ratings, the center director identified the managerial strengths and weaknesses of each participant. In general, a dimension rating of less than three indicated a weakness in that dimension. On-the-job performance ratings (self, superior, and subordinate) and standardized test scores also were considered by the director in determining managerial strengths and weaknesses. In a feedback session, these strengths and weaknesses were presented to the individual participants. The director also recommended a plan of study indicating

which in-house management training courses each participant should take. The assessment results were confidential and made available only to the individual participants.

Design and Procedure

To measure participant reactions to the assessment, a 26-item questionnaire based on the feedback model of Ilgen, Fisher, and Taylor (1979) was developed. This model indicates that feedback affects behavior by: (1) the way it is perceived, (2) its acceptance by the recipient, and (3) the willingness of the recipient to respond to feedback. Using this questionnaire, the participants' rated their perceptions the feedback process on a 5-point scale, with 5 indicating the most favorable response.

An index of the match between the courses recommended in the feedback sessions and the plan of study was used to determine the extent to which the plan of study decisions were based on the feedback. This index is the percentage of recommended courses that were recorded on the respective plans of study for each participant. The participants could take all or none of the recommended courses; however, they were required to complete their plans of study within two years. The courses were generally one to two weeks in length.

The responses from the reaction questionnaire, the match index, and the assessment center ratings were used to analyze the participants' reaction to and acceptance of the feedback. These measures were used in a correlational analysis as the following three variables: (A) responses to the reaction questionnaire as the measure of acceptance of the assessment center, (B) the match index as the measure of the extent to which recommendations are acted on, and (C) the assessment center ratings as the measure of performance.

To determine if participation in the development center improved the managerial performance of the subjects, a subsample of 33 participants volunteered to participate as the treatment group in a pre- and posttest design. A control group of 20 state government managers was selected to receive the pre- and posttests. Managerial effectiveness was measured with eleven

items from the written situational test exercise as a pretest measure, and a parallel form as the posttest measure. The written situational test was based on situational interview methodology developed by Latham, Saari, Pursell, and Campion (1980). The treatment group had completed this exercise as part of the normal assessment process. The pre- and posttest scores of the two groups were analyzed as the dependent variable in a two-way analysis of variance, as recommended by Cook and Campbell (1976, p. 251). To determine the effectiveness of the assessment and feedback process, an effect size was calculated using the formula employed by Burke and Day (1986). Effect size, the metric commonly used in meta-analysis, is the normalized difference between the treatment group and the control group.

To determine the results of the program in terms of economic utility, rating scales were developed based on the Cascio-Ramos Estimate of Performance in Dollars (CREPID) (Cascio, 1982). This model was used to estimate the standard deviation in dollars (SD_y) for job performance of the participants. A subsample of 25 assessment center participants rated the seven most critical management functions on the CREPID rating scales. The functions were rated in terms of time/frequency, importance, consequence of error and level of difficulty. The obtained SD_y, effect size, and assessment center costs were entered into the utility equation, as described by Landy and Farr (1983, p.268).

Results

The results indicate that attitudes toward the assessment center and the feedback were generally favorable. Overall, participants thought that they would be better managers as a result of their participation in the assessment center. The participants responded that they planned to base their plan of study on the feedback (M = 4.29, SD = .57), and that the recommendations from the assessment center were worthwhile (M = 4.28, SD = .53). The respondents believed that they will be better managers by improving themselves based on the feedback (M = 4.20, SD = .60), and that the feedback was valuable for their personal development (M =4.33, SD = .60). The

lowest rated responses concerned the ability of the participants to refuse to attend the assessment center without negative consequences (M = 3.35, SD = .86), and the amount of information provided to the participants prior to their attending (M = 3.54, SD = 1.06). Only 39 participants (50%) felt that they could have refused to attend the assessment center without negative consequences.

Plan of study data were available from 71 participants. A mean of 7.8 courses was recommended to the participants in the feedback session, and a mean of 6.3 courses was actually included on the participants' plans of study. The index of the match was calculated for each participant, and on the average, 81% of the courses recommended were included on the plans of study. The match index ranged from 25% to 100%, with a standard deviation of 16%.

The relationship between assessment center performance and the extent the recommendations were followed was not significant. Low performers in the assessment center followed the recommendations to the same extent as did high performers. Also, there was no relationship between the level of acceptance of the feedback and assessment center performance. Low performers reacted to the feedback as well as high performers did. Contrary to the expectations, however, there was no relationship between the level of acceptance of the feedback, and the extent to which the recommendations were acted on. Participants who responded less favorably to the feedback followed the recommendations as closely as those who responded favorably.

The results of a repeated-measures analysis of variance indicate that the participants were able to improve their scores on a measure of managerial effectiveness after participating in the development center. Table 1 reports descriptive statistics for the pretest and posttest scores for the treatment and control groups. Table 2 is the ANOVA table for the written situational test scores. Group membership served as the between-subjects factor, and the time of testing as the within-subjects factor. The effects of the within-subjects factor were significant, indicating that the difference between the pre- and posttest scores of the two groups was significant. The

interaction between group membership and time of testing was also significant ($p \leq .0001$), indicating that the effects of the treatment were significant (Cook & Campbell, 1976, p. 251).

Insert Table 1 and 2 about here

The effect size for the assessment and feedback process was .64, with a within-group standard deviation of 5.53. Thus, if a person in the control group were to go through the assessment and feedback, his or her managerial performance would be expected to improve .64 standard deviation units (Burke & Day, 1986).

Using the CREPID technique (Cascio, 1982), the standard deviation of performance in dollars was estimated to be $13,925. Based on the financial records of the program, the cost of conducting the assessment center was estimated to be $413 per participant. By substituting the SDy, the effect size, and the cost component into the equation described by Landy and Farr (1983), the utility of the assessment center program was estimated to be $8,499 per participant for a single year. For the 102 state government managers who participated in the program, the gain in productivity for one year was $868,898. The dollar value of the improvement in managerial performance as the result of assessment center participation, therefore, was much greater than the cost of conducting the assessment centers.

Discussion

The responses to the reaction questionnaire indicate a positive perception of the feedback, and a fairly high level of acceptance by the participants. Participants agree that their knowledge of their managerial skills was increased as a result of the feedback, and that the feedback provided new insights into their managerial behavior. The results of the match index show that the participants followed the recommendations from the feedback to a fairly high extent.

For a developmental assessment center, the acceptance of the feedback by the participants is a critical factor in determining the effectiveness of the program. Low performers in this assessment center reacted to the feedback as well as high performers. Low performers also followed the recommendations to the same extent as the high performers. Participants who responded less favorably to the feedback followed the recommendations as closely as those who responded favorably. The feedback from this assessment center program, therefore, appears to meet the criteria of effectiveness set by the Ilgen et al. (1979) model

With the measure of managerial effectiveness, the difference between the the control and treatment groups on the posttest was significant, with the treatment group scoring higher. The difference between the two groups on the pretest was also significant, with the control group scoring higher. Cook and Campbell (1976) discuss the interpretation of outcomes of this type, where the low scoring pretest group (the treatment group) overtakes the high scoring control group. These results are more interpretable than other outcomes of the non-equivalent control group design, according to Cook and Campbell. They can be interpreted as an indication that, as a result of the treatment, the treatment group significantly improved their scores on the posttest. The possibility exists, however, that the effects of local history are a source of invalidity in this study. It is not known if any of the subjects participated in developmental activities between the time of the pretest and the posttest.

Because the feedback was specific and behaviorally based, the participants apparently were able to apply this information when responding to items on the measure of managerial effectiveness. Although one cannot be certain that this learning will transfer to the work place, there is some evidence of a relationship between what employees said they would do in hypothetical situations, and what supervisors and peers observed them doing on the job (Latham & Saari, 1984).

From a review of the literature on the effects of feedback on performance, Landy and Farr (1983) concluded that the effect size of evaluation and feedback was .60. According to Cohen (1977), an effect size of .64 is near the midpoint between a medium and a large effect. By these standards, the effect of the assessment center feedback on managerial performance in this study is fairly large and of practical significance.

In the present study, the obtained SD_y is 39% of annual salary. Cascio and Ramos (1986) found that their standard deviations across five job classes varied from 40% to 50% of the average actual wage. The estimate of the standard deviation of performance in dollars in the present study, therefore, appears to be conservative. Landy and Farr (1983) report that the utility of feedback from a performance appraisal system was $11,300 per manager. Therefore, the estimate of utility in the present study ($8,499 per participant) also appears to be conservative. The results of the utility analysis indicate that assessment centers can be a cost effective method for developing managers. The estimated gain in productivity from assessment center participation far outweighs the cost of conducting the centers.

In summary, it appears that assessment center technology can be a powerful tool for developing managers. One other study was found which investigated the effects of assessment center feedback on subsequent performance. Barber (cited in Thornton & Byham, 1982, p. 329), found that participants who received feedback from the assessment scored higher on a criterion measure based on leadership and academic performance. A control group received significantly lower scores on overall performance ratings. The results of Barber's study and the present study provide some evidence of the effectiveness of assessment feedback in improving the managerial performance of the participants. More research is necessary before any definite conclusions can be drawn about the efficacy of this process. More research also is needed on the procedures used to validate assessment centers (e.g., Sacket, 1987).

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Table 1

Descriptive Statistics for Pretest and Posttest Scores on Written Situational Test for Control and Treatment Groups

	n	M	SD	Std. Error	Range
Pretest (Control)	20	21.40	5.56	1.24	11.0-30.5
Posttest (Control)	20	20.22	5.03	1.12	12.0-34.0
Pretest (Treat.)	33	15.09	5.54	0.97	6.0-28.0
Posttest (Treat.)	33	23.77	5.75	1.00	12.0-42.0

Note: Std. Error = standard error of the mean. Control = control group, Treat. = treatment group.

Table 2

Repeated-Measures Analysis of Variance Table for Written Situational Test Scores

Source	df	Sum of Squares	Mean Squares	F-test	p value
Between subjects					
Group	1	47.48	47.48	1.12	.295
Subjects (groups)	51	2163.54	42.42		
Within subjects					
Time	1	652.54	652.54	35.15	.0001
Group x Time	1	604.94	604.94	32.59	.0001
Subjects (Group x Time)	51	946.77	18.56		